Amendments to the Claims:

1. (currently amended): A degradation resistant composition of matter for use in living tissue ~~comprising~~, comprising:

an yttria-stabilized tetragonal zirconia polycrystal substrate;

a coating of alumina deposited on the substrate, said coating being deposited by ion beam assisted deposition in the presence of the substrate; and wherein

said coating has a total porosity of less than about 1.0 percent.

2. (original): The material of claim 1, wherein said coating has an average grain size less than about 0.5 microns.

3. (original): The material of claim 1, wherein said coating comprises alpha-alumina, amorphous alumina, or a blend thereof.

4. (original): The material of claim 1, wherein said coating has a thickness that is greater than about 1.6 micron and less than about 10 microns.

5. (original): The material of claim 1, wherein said yttria-stabilized tetragonal zirconia polycrystal substrate comprises about 3 mole percent yttria.

6. (cancelled):

7. (cancelled):

8. (cancelled):

9. (cancelled):

10. (cancelled):

11. (cancelled): The method according to claim 6, wherein said selecting deposition parameters comprises selecting an ion beam bombardment energy of about 1000 eV and an ion beam current of about 26 mA.

12. (cancelled):

13. (new): A degradation resistant composition of matter for use in living tissue, comprising:

an yttria-stabilized tetragonal zirconia polycrystal substrate;

a moisture resistant coating of alumina deposited on the substrate; wherein said coating has a total porosity of less than about 1.0 percent.

14. (new): The subject matter of claim 13, in which the coating is formed by ion beam assisted deposition.